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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/939,783	08/28/2001	Zhengchen Yu	033337-0117	2837

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WASHINGTON, DC 20007

EXAMINER

TRAN, DZUNG D

ART UNIT	PAPER NUMBER
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2633

DATE MAILED: 08/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/939,783

Applicant(s)

YU ET AL.

Examiner

Dzung D Tran

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 13-18 and 25-34 is/are rejected.
- 7) ☒ Claim(s) 7-12 and 19-24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5, 5.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "switching, service fiber, protection fiber" on claims 32-34 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 18 and 25-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Stephens et al. US patent no. 6,563,614.

Regarding claim 18, Stephens discloses a method for controlling compensating channels (same as substitute signal) transmissions comprising the steps of: source controller 32 are configured to receive the monitoring signal (same as a command) to adjust a power of a compensating channels (same as substitute signal) associated with a particular sub-band, wherein said sub-band includes at least two signal channels; and adjusting said power based on said command (col. 7, lines 28-35).

Regarding claim 25, Stephens further discloses the system with 1-n channels (i. e. n can be 128 or more) and 4 sub-bands (figure 1, col. 8, lines 23-27). Furthermore, whether the number of optical transmitters is at least 128 or the number of sub-bands is no more than 48 is obviously an engineer design choice.

Regarding claims 26-29, Stephens further discloses the source controller 32 response to a sudden reduction of the optical power within a sub-band by increasing the optical power supplied by the optical compensating source 30. Likewise, if an increase in optical power is detected in the sub-band, the controller 12 must decrease the optical output supplied by the optical compensating source 30 (col. 8, lines 32-42) that is inherently for adjusting a power by turned on or turned off of the optical compensating source 30.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-6, 13, 16, 17 and 30-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stephens et al. US patent no. 6,563,614 in view of Kobayashi US patent no. 6,171,782.

Regarding claims 1 and 30, Stephens discloses a method for controlling compensating channels (same as substitute signal) transmission in a wavelength division multiplexed (WDM) device having a plurality of sub-bands (col. 5, lines 45-53), each sub-band including at least two signal channels which carry respective data

signals (col. 6, lines 45-54), and a plurality of compensating channel (same as substitute signal) transmitters 30 (col. 7, lines 5-8), each substitute signal transmitter 30 generating a compensating channel (same as substitute signal) and corresponding to a respective one of the plurality of sub-bands (col. 7, lines 28-35), comprising: identifying signal channels having a predetermined power (same as predetermined characteristic) within each of the plurality of sub-bands (col. 8, lines 32-42); responses to a reduction of the optical power within a sub-band by increasing the optical power supplied by the optical compensating source (col. 8, lines 32-42); combining the data signals supplied by transmitters 22 and the substitute signals supplied by transmitters 30 into a WDM signal; and transmitting the WDM signal over an optical transmission fiber 18.

Stephens differs from claims 1 and 30 of the present invention in that Stephens does not specific disclose turning on a substitute signal transmitter if the sub-band corresponding to the substitute transmitter includes a predetermined number of signal channels having said predetermined characteristic. Kobayashi discloses an optical apparatus having a plurality of optical transmitters (12 of figure 1, same as a group of sub-bands transmitters) and a backup transmitter 19 (same as substitute signal transmitter) has a wavelength variable laser diode 23 for emitting (same as turn on) a substitute signal whose wavelength is substantially coincident with the light wavelength input (col. 4, lines 37-45) when the signal of the sub-band is cut off and some trouble is detected by controller 22 (col. 5, lines 3-13). At the time of the invention was made, it would have been obvious to include the teaching of Kobayashi in the system of Stephens. One of ordinary skill in the art would have been motivated to do this in order

to obtain a backup system for the transmitters (in case of components failure), thus it equalize the optical power of the system.

Regarding claim 2, Kobayashi discloses photodiode 21 for detecting a predetermined light amount of optical signal to determine the trouble wavelength (col. 4, line 64 to col. 5, line 13).

Regarding claims 3 and 4, Kobayashi discloses a detector (17 of figure 1) which detects the wavelengths and power levels of each data signal in the WDM signal (col. 3, lines 34-41). Furthermore, Stephens discloses controller 12 for detecting the optical power and configured to compensate for power within sub-bands (col. 8, lines 32-42).

Regarding claim 5, Stephens discloses controller 12 adjusting the power of the turned-on substitute transmitter depending on power change within sub-bands (same as the number of unused or inoperable signal channels in the identified sub-band) (col. 8, lines 32-42). Furthermore, Kobayashi disclose a detector 17 which detects the power levels of each trouble wavelengths $\lambda_1 - \lambda_n$ (figure 1, col. 5, lines 3-13).

Regarding claims 6 and 16, Stephens further discloses predetermined number (number of sub-bands) is 4 (col. 8, lines 24-25).

Regarding claims 13, 17 and 31, Stephens further discloses the system with 1-n channels (i. e. n can be 128 or more) and 4 sub-bands (figure 1, col. 8, lines 23-27). Furthermore, whether the number of optical transmitters is at least 128 or the number of sub-bands is no more than 48 is obviously an engineer design choice.

Regarding claims 32-34, Stephens in figure 2 discloses the optical system having service fiber (clockwise direction) and protection fiber (counter clockwise direction) between the nodes 14.

6. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stephens et al. US patent no. 6,563,614 in view of Kobayashi US patent no. 6,171,782 and further in view of Srivastava US patent no. 6,602,002.

Regarding claims 14 and 15, as per claims above, Stephen and Kobayashi disclose all the limitations, except an attenuator for attenuating the power of the substitute signals output. Srivastava further discloses an attenuator 256 for attenuating the optical power, thus it would have been obvious to impose the attenuator 256 in the system of Stephen and Kobayashi, between the substitute transmitter and the combining circuit for adjusting the output power of the substitute transmitter and equalize the optical power of the system.

7. Claims 7-12 and 19-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion


8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Tajima U.S. publication no. 6,714,740. Optical network and switch control method for use in the optical network
 - b. Mori et al. U.S. patent no. 5,677,781. Method and device for measuring a noise figure in optical amplifiers
 - c. Cao U.S. patent no. 6,731,877. High capacity ultra-long haul dispersion and nonlinearity manage lightwave communication system
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dzung Tran whose telephone number is (703) 305-0932.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, Jason Chan, can be reached on (703) 305-4729.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.


JASON CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600